

Claim Appendix without Markings

4. A motion transmitting remote control assembly (10) for transmitting motion in a curved path, said assembly comprising:

a first (14) and second (16) conduit sections;

a flexible motion transmitting core element (12) movably supported in said conduit sections;

adjustment components (18, 20) interconnecting said first and second conduit sections (14, 16) and in telescoping relationship with each other for adjusting the overall length of said first and second conduit sections (14, 16) wherein one of said adjustment components is a female member (20) and the other of said adjustment components is a male member (18) slidably disposed in said female member (20);

a coil spring (22) supported on said male member (18) and interacting between said members (18, 20) to bias said members (18, 20) together to shorten the overall length of said first and second conduit sections (14, 16); and

a retainer (24) for retaining said spring (22) in compression on one of said members (18, 20), said members (18, 20) including an abutment (19) for reacting with said spring (22) in place of said retainer (24) to bias said members (18, 20) together in the direction to shorten the overall length of said conduit sections (14, 16).

5. An assembly as set forth in claim 4 wherein said male member (18) includes adjustment teeth (21) therealong and a locking member (19) supported by said female member (20) for engaging said teeth (21) in a locked position to prevent relative telescoping movement between engaging said teeth (21) in a locked position to prevent relative telescoping movement between said telescoping members (18 and 20), said abutment being presented by said locking member (19).

6. An assembly as set forth in claim 5 wherein said locking member (19) includes a tunnel (30) extending therethrough for receiving said retainer (24) through said

tunnel (30) during telescoping movement of said male and female members (18 and 20) in the conduit lengthening direction to allow said abutment on said locking member (19) to react with said spring (22).

7. An assembly as set forth in claim 6 wherein said male and female member (18 and 20) include complementary keyways (38 and 40) for rotary orientation of said male member (18) relative to said female member (20).

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8. An assembly as set forth in claim 7 wherein said spring (22) spiraled around said male member (18) and includes an annular collar (26) reacting axially between said retainer (24) and said spring (22) and for reacting between said spring (22) and said locking member (19).

9. An assembly as set forth in claim 8 wherein said male member (18) defines an inner end (32) and said female member (20) presents a bottom end wall (34), said retainer (24) presenting a reaction surface for reacting with said collar (26) and which reaction surface is axially spaced toward said bottom end wall (34) from said abutment presented by said locking member (19) when said inner end (32) of said male member (18) is fully inserted adjacent said bottom end wall (34) of said female member (20).

10. An assembly as set forth in claim 9 including a detent (27) for holding said locking member (19) in an intermediate position out of engagement with said teeth (21) while in engagement with said collar (26).

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11. An assembly as set forth in claim 10 wherein said male member (18) includes a sealing length adjacent said inner end (32) thereof in sliding engagement with said female member (20) and a reduced cross section defining a spring seat (44) therebetween, said spring (22) reacting between said spring seat (44) and said collar (26).

12. An assembly as set forth in claim 11 including a seal (46) sealing said sealing length of said male member (18) and said female member (20).

13. An assembly as set forth in claim 12 including a pillar (36) extending into said female member (20) from said bottom end wall (34) thereof, said pillar (36) having a bore therethrough, said core element extending through said bore in said pillar (36).

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14. An assembly as set forth in claim 13 wherein said keyways (38 and 40) extend axially along the exterior of said pillar (36).

15. An assembly as set forth in claim 13 wherein said male member (18) presents an internal limit surface (42) for engaging the inner end (32) of said pillar (36) to limit the insertion of said male member (18) into said female member (20) to define the shortest overall length of said conduit.

16. An assembly as set forth in claim 13 wherein said locking member (19) is U-shaped with teeth (23) on the interior of said legs for engaging said teeth (21) on said male member (18) and hooks (25) at the distal ends of said legs, said detent (27) including recesses in said female member (20) for engaging said hooks (25) in said intermediate position, said female member (20) presenting catches (28) for engaging and retaining said hooks (25) to lock said locking member (19) in said locked position.

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17. The motion transmitting remote control assembly (10) of claim 4 wherein said spring (22) expands axially to bias the components (18, 20) together to shorten the overall length of said first and second conduit section (14, 16).

18. A motion transmitting remote control assembly (10) for transmitting motion in a curved path, said assembly comprising:

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a first (14) and second (16) conduit sections;

a flexible motion transmitting core element (12) movably supported in said conduit sections;

adjustment components (18, 20) interconnecting said first and second conduit sections (14, 16) and in telescoping relationship with each other for adjusting the overall length of said first and second conduit sections (14, 16) wherein one of said adjustment components includes adjustment teeth (21) and the other of said adjustment components supports a locking member (19) that selectively engages said teeth (21) to prevent relative telescoping movement between said adjustment components (18, 20); and

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a coil spring (22) interacting between said adjustment components (18, 20) to bias said components (18, 20) together to shorten the overall length of said first and second conduit sections (14, 16).

19. A motion transmitting remote control assembly (10) for transmitting motion in a curved path, said assembly comprising:

a first (14) and second (16) conduit sections;

a flexible motion transmitting core element (12) movably supported in said conduit sections;

adjustment components (18, 20) interconnecting said first and second conduit sections (14, 16) and in telescoping relationship with each other for adjusting the overall length of said first and second conduit sections (14, 16);

a coil spring (22) interacting between said adjustment components (18, 20) to bias said components together to shorten the overall length of said first and second conduit sections (14, 16); and

a collar (26) supported on one of said adjustment components (18, 20) for reacting axially between said one of said adjustment components and said spring (22).

20. A motion transmitting remote control assembly (10) for transmitting motion in a curved path, said assembly comprising:

a first (14) and second (16) conduit sections;

a flexible motion transmitting core element (12) movably supported in said conduit sections;

adjustment components (18, 20) interconnecting said first and second conduit sections (14, 16) and in telescoping relationship with each other for adjusting the overall length of said first and second conduit sections (14, 16) wherein said adjustment components include a female member (20) and a male member (18) slidably disposed in said female member (20); and

a coil spring (22) supported on said male member (18) and interacting between said members (18, 20) to bias said members (18, 20) together to shorten the overall length of said first and second conduit sections (14, 16).

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cont 21. An assembly as set forth in claim 20 including a retainer (24) disposed on one of said adjustment components (18, 20) for retaining said spring (22) in compression.

22. An assembly as set forth in claim 21 wherein said retainer (24) is formed as a projection on said male member (18).

23. An assembly as set forth in claim 20 including a locking member (19) supported by said female member (20) and movable between a locked position to prevent relative telescoping movement between the adjustment components (18, 20) and an unlocked position to allow relative telescoping movement between the adjustment components (18, 20).

24. An assembly as set forth in claim 23 wherein said male member (18) includes adjustment teeth (21) and said locking member (19) includes locking teeth (23) for selectively engaging said adjustment teeth (21) when said locking member (19) is moved to said locked position.

25. An assembly as set forth in claim 24 wherein said locking member (19)

includes at least one detent (25) and said female member (20) includes at least one recess (27) for receiving said detent to hold said locking member (19) in said unlocked position while prohibiting relative movement between said female member (20) and said locking member (19).

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26. An assembly as set forth in claim 25 wherein said female member (20) includes at least one catch (28) for engaging and retaining said detent (25) when said locking member (19) is moved to said locked position.

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27. An assembly as set forth in claim 23 wherein said locking member (19) defines an abutment that reacts with said spring (22) during assembly of said male member (18) into said female member (20) such that said adjustment components (18, 20) are biased together to shorten the overall length of said conduit sections (14, 16).

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28. An assembly as set forth in claim 20 wherein said male (18) and female (20) members includes complementary keyways (38, 40) for rotary orientation of the male member (18) relative to the female member (20).

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29. An assembly as set forth in claim 28 including a retainer (24) formed on said male member (18) for retaining said spring (22) in compression and a locking member (19) supported on said female member (20), said locking member (19) being selectively engageable with said male member (18) to prevent relative movement between said male (18) and female (20) members wherein said keyways align said retainer (24) within said locking member (19) as said male member (18) is inserted into said female member (20).

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37. A motion transmitting remote control assembly (10) for transmitting motion in a curved path, said assembly comprising:

a first (14) and second (16) conduit sections;

a flexible motion transmitting core element (12) movably supported in said conduit

sections;

adjustment components (18, 20) interconnecting said first and second conduit sections (14, 16) and in telescoping relationship with each other for adjusting the overall length of said first and second conduit sections (14, 16);

a pillar (36) extending into said adjustment components (18, 20) and having a bore therethrough for receiving said core element (12); and

a coil spring (22) interacting between said components (18, 20) to bias said components (18, 20) together to shorten the overall length of said first and second conduit sections (14, 16).

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38. An assembly as set forth in claim 37 wherein said adjustment components include a female member (20) and a male member (18) slidably disposed in said female member (20) including complementary keyways (38, 40) for rotary orientation of the male member (18) relative to the female member (20).

39. An assembly as set forth in claim 38 wherein said male member (18) presents an internal limit surface (42) for engaging an inner end (32) of said pillar (36) to limit insertion of said male member (18) into said female member (20) to define the shortest overall length of said conduit.

40. An assembly as set forth in claim 37 wherein said adjustment components include a female member (20) and a male member (18) slidably disposed in said female member (20), said pillar (36) being slidably disposed in said male member (18).